



35 Minutes

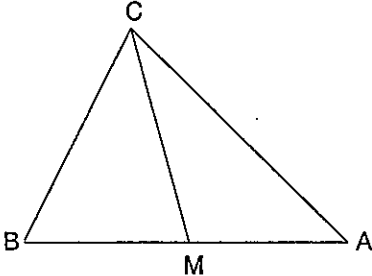
October 14, 2010

**AMERICAN SCHOLASTIC MATHEMATICS ASSOCIATION
JR/INTER SCHOOL DIVISION
CONTEST #1**

NAME _____ SCHOOL _____

QUESTIONS

ANSWERS

1. 150% of a number is 300. What is the number?	1.
2. The average (arithmetic mean) age of a group of six people is 23 years. In four years, what will their average age be?	2.
3. A store is open 67 hours each week. Each weekday it is open for 2 hours less than on Saturday. On Sunday it is open for half as long as on weekdays. How many hours is the store open on Monday?	3.
4. Jane of "Jane's Stationery Store" purchases pens from the "All Write Pen Company" at \$3.79 a dozen and sells the pens for 2 for \$1.00. How many dozen pens would Jane have to buy from the "All Write Pen Company" and then sell in order to make a profit of at least \$100? (Answer in whole dozens)	4.
5. In the diagram, M is the midpoint of line segment AB. If the area of triangle ACM is 5 square centimeters, how many square centimeters is the area of triangle ABC? <div align="center">  <p>(not drawn to scale)</p> </div>	5.
6. For which pair of numbers does their sum equal their product? <div align="center"> $1\frac{3}{5}$ $2\frac{2}{5}$ $2\frac{3}{5}$ $2\frac{2}{3}$ (Both numbers required) </div>	6.
7. At a party, 4 couples meet and shake hands. Each person shakes hands with everyone except his or her own spouse. How many handshakes are there?	7.

ADVISER: Transfer a "1" for each correct answer and a "0" for each incorrect answer to the return scorecard. Mail results within 5 days of the contest date. Please make up any missed contests and mail the results.



35 Minutes

November 11, 2010

AMERICAN SCHOLASTIC MATHEMATICS ASSOCIATION
JR/INTER SCHOOL DIVISION
CONTEST #2

NAME _____

SCHOOL _____

QUESTION

ANSWER

1. On how many pages in a 500-page book, with all pages numbered, will the number 3 appear at least once?	1.
2. What fraction of an hour passed between 2:55 PM today and 3:19 PM today? (Disregard seconds.) What fraction of the day was that? (Two answers required)	2.
3. In square ABCD, $AB = 4$ cm. At each corner of the square, a toothpick of length 4 cm is attached. The four loose ends of the toothpicks are attached together at a new point P, which is <u>outside</u> the plane of the square. The toothpicks together with the square now form a pyramid with a square base. Find the number of degrees in angle APB.	3.
4. In a certain game, one heart + one spade = 12 points. one heart + one club = 11 points one spade + one club = 10 points How many points would 2 hearts equal?	4.
5. Cheapo's Department Store is having a sale. It is selling widgeits at 20% off list price. However, it charges its customers a fee of 10% of the sale price as a service charge (for the overhead of running the sale). What is the actual discount in percent that someone buying widgeits will get?	5.
6. At the mall, Jeff spent half his money on a record. He then spent \$2.75 on a magazine. He loaned three-fourths of the money he had left to his sister and spent his last \$1.35 on a sandwich. How much money did Jeff start out with?	6.
7. For the set {30, 80, 50, 40, x} the mean, median and mode are all equal. Find x.	7.

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35 Minutes

December 9, 2010

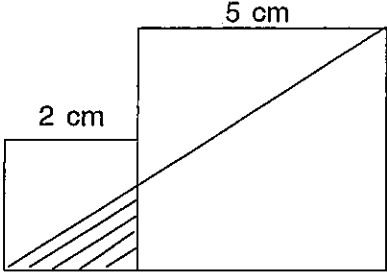
**AMERICAN SCHOLASTIC MATHEMATICS ASSOCIATION
JR/INTER SCHOOL DIVISION
CONTEST #3**

NAME _____

SCHOOL _____

QUESTION

ANSWER

<p>1. I have only dimes (ten-cent coins), nickels (five-cent coins) and pennies (one-cent coins) in my pocket. Seven of the coins are dimes, 25 percent of the coins are nickels and $\frac{5}{9}$ of them are pennies . How much money do I have?</p>	<p>1.</p>
<p>2. How many numbers that are perfect squares can be displayed on a digital clock in a 12-hour period? (The colon [:] separating hours and minutes is ignored.)</p>	<p>2.</p>
<p>3. Huey, Dewey and Louie each have sweatshirts with their own names written on them. None of the guys is wearing the shirt with his own name on it. If Huey is wearing Dewey's shirt, then who is wearing Louie's shirt?</p>	<p>3.</p>
<p>4. The two squares have dimensions as indicated. What is the area of the shaded triangle?</p> <p>(not drawn to scale)</p> 	<p>4.</p>
<p>5. After 38 liters of gasoline were put in an empty tank, the tank was still 5% empty. How many liters does the tank hold when full?</p>	<p>5.</p>
<p>6. There is a stack of 5 identical cement blocks in a storeroom. The bottom of the top block is $4\frac{1}{2}$ feet from the ceiling. The bottom of the next highest block is $6\frac{1}{4}$ feet from the ceiling. How high is the ceiling of the storeroom?</p>	<p>6.</p>
<p>7. The Santiago family went on an automobile trip. They travelled a total of 15 hours to reach their destination. On the trip home, their average (mean) speed was 6 miles per hour (mph) faster than the trip going. They made the trip home in $1\frac{1}{2}$ hours less time. What was the average speed for each part of the trip? (use $d = rt$)</p>	<p>7.</p>

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January 13, 2011

AMERICAN SCHOLASTIC MATHEMATICS ASSOCIATION
JR/INTER SCHOOL DIVISION
CONTEST #4

NAME _____

SCHOOL _____

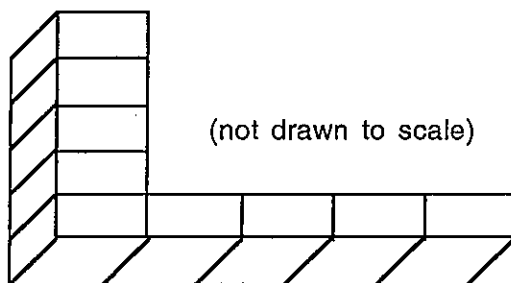
QUESTION

ANSWER

1. It takes 5 hours to fill a swimming pool with water using a hose. The full pool can be drained in 6 hours. If the hose is on and the drain is open, how long, in hours, will it take to fill the pool?

1.

2. To form the L, 9 white cubes were glued together. The L was then dipped into red paint so that all of its sides were completely covered. If the cubes in the L were separated, how many cubes would have exactly 4 red surfaces?



2.

3. What percent of the number 25 is the number $\frac{1}{2}$?

3.

4. Rearrange the numbers on a clock face (analog) so that all the sums of pairs of adjacent numbers will be composite numbers between 7 and 17.

4.

5. Mrs. Guggenheim took the arithmetic mean (average) of the fifty test grades of her students on a test and found it to be 38. She then found that 2 of her students were ill on the day of the test and decided not to count their two scores of 45 and 55. What is the mean of the remaining scores (to the nearest tenth)?

5.

6. Paul has a stack of colored cards. Each color is associated with a number as follows:

yellow: 2 red: 3 blue: 5 purple: 7

Sue selects some cards whose product is 70,560. How many of each color does she have?

6.

7. A rectangular piece of land is worth \$1000. The length and width of a second rectangular piece of land are 50% greater than those of the first piece. How much is the second piece of land worth?

7.

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35 Minutes

February 10, 2011

**AMERICAN SCHOLASTIC MATHEMATICS ASSOCIATION
JR/INTER SCHOOL DIVISION
CONTEST #5**

NAME _____ SCHOOL _____

QUESTION

ANSWER

<p>1. Four cards are lined up next to each other in a row in no order. Each has a number on the other side. The numbers are 67, 23, 84 and 51. Use these clues to find which number goes on which card.</p> <p>Clues:</p> <ul style="list-style-type: none"> • A prime number is between 2 composite numbers • The odd multiple of 3 has no number on its left. • The least number is not between two cards. 	<p>1.</p>
<p>2. A palindrome is a number that reads the same forward and backward. For example, 121 and 45654 are palindromes. On a digital clock, if the symbol (:) is ignored, 1:21 and 12:21 are palindromes. On a digital clock, what is the shortest time between two consecutive palindromes? List the time in minutes and the palindromes. (two answers are required)</p>	<p>2.</p>
<p>3. For babysitting, Tina charges \$1.50 per hour until midnight and \$2.25 per hour after midnight. On Friday, Tina earned \$13.00 for babysitting until 2:00 AM. At what time did she begin to babysit?</p>	<p>3.</p>
<p>4. Which region of the following rectangle shows $16\frac{2}{3}\%$ of the total area?</p> <div style="text-align: center;"> <p>4 2</p> <p>1 5 3 3 (not drawn to scale)</p> </div>	<p>4.</p>
<p>5. The base of an isosceles triangle measures 10 inches, and the area of the triangle is 60 square inches. What is the length in inches of the two congruent sides?</p>	<p>5.</p>
<p>6. Marco has painted an entire log except the bases to use in Mrs. Smith's class play. He painted $\frac{1}{2}$ green, $\frac{2}{3}$ of the remaining log red, $\frac{1}{8}$ of the half that is not green in yellow and 5 inches blue. How long is the log?</p>	<p>6.</p>
<p>7. Find a four-digit number so that when a decimal point is placed between its hundreds and tens digit, the result is the average of the two-digit numbers on either side of the decimal point.</p>	<p>7.</p>

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35 Minutes

March 10, 2011

**AMERICAN SCHOLASTIC MATHEMATICS ASSOCIATION
JR/INTER SCHOOL DIVISION
CONTEST #6**

NAME _____ SCHOOL _____

QUESTION	ANSWER
1. A circle graph showing the colors of cars produced by a manufacturer has five sectors. The manufacturer produced twice as many black cars as red cars and twice as many red cars as grey cars. Blue cars and white cars each accounted for 15% of the manufacturer's production. What is the central angle for the red car sector?	1.
2. Bob took three positive integers. He subtracted the second from the first. Then he subtracted the third from this difference. Gina took the same three numbers in the same order, but subtracted the third from the second and then subtracted this difference from the first number. Gina's final result was 12 larger than Bob's. What was the third number they both used?	2.
3. A car travels 40 mph for 20 miles, 36 mph for 24 miles and 48 mph for 16 miles. What is the average (mean) speed in miles per hour? (use $d = rt$)	3.
4. One football and one golf ball weigh as much as one baseball and one tennis ball. Three golf balls weigh as much as one tennis ball and one baseball. One baseball weighs as much as eight tennis balls. How many tennis balls weigh as much as one football?	4.
5. Alex, Bill and Carl each have a certain amount of money. Alex gave Bill as much money as Bill first had. Then Bill gave Carl as much money as Carl first had. Then Carl gave Alex as much money as Alex then had. They each ended up with 16 cents (sixteen one-cent coins). How many cents did Alex start with?	5.
6. This figure has a perimeter of 58 cm. What is the measure of x ? (not drawn to scale)	6.
7. If you begin with the fraction $\frac{1}{3}$ and add the denominator to the numerator and denominator, the fraction is doubled: $\frac{1}{3} \rightarrow \frac{1+3}{3+3} = \frac{4}{6} = \frac{2}{3}$ Find a fraction that will triple when its denominator is added to its numerator and denominator. (Express answer in lowest terms.)	7.

Note: Since this is the last contest of the year, the adviser must make sure the cumulative score for each student is indicated on the scorecard so that we can issue the award for your highest scoring student.